

**CHARACTERIZATION STUDIES OF AQUEOUS IMMERSION SOLUTIONS OF
NOVEL ENVIRONMENTALLY FRIENDLY ORGANOMETALLIC CORROSION
INHIBITORS USED TO CURE ALUMINUM 2024, 6061, AND 7075 ALLOYS
SUBSTRATES IN CORROSIVE MEDIA**

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ABSTRACT

In this investigation, aqueous immersion solutions of novel environmentally friendly corrosion inhibitors that are used to inhibit corrosion of Aluminum 2024, 6061 and 7075 substrate surfaces in corrosive media are characterized since immersion solutions are indicators of the extent of corrosion, which can even be observed visually in a qualitative manner. In addition to visual observations revealing the extent of corrosion qualitatively, the pH and oxidation-reduction potential of the immersion solutions were measured with respective probes prior to and after the immersions and relevant conclusion made extensively to propose the chemical mechanisms with regards to the inhibitors used for corrosion inhibition of aluminum alloys.

Inhibitors used were previously synthesized by the author as replacements for carcinogenic hexavalent chromium inhibitors. Syntheses and characterization studies of the novel environmentally friendly corrosion inhibitors, the results of weight-loss tests performed to obtain the inhibition efficiencies of these inhibitors and characterization studies of the substrate surfaces immersed in aqueous inhibitor solutions by means of different surface techniques such as FT-IR, X-Ray, SEM, XPS and digital imaging were reported in author's various work elsewhere in the literature.

KEYWORDS: Carcinogenic, Characterization, Conversion Coating, Immersion, Probe, Substrate